

APPARATUS AND METHOD FOR LIGHTER-THAN-AIR AIRCRAFT

ABSTRACT OF THE DISCLOSURE

An apparatus and associated method for launching and recovering a lighter-than-air aircraft are provided. The aircraft includes an envelope that is substantially filled before launch with a lift gas and a second gas. The lift gas and second gas are substantially separated in the envelope by a boundary layer of mixed gas, formed by the lift and second gases. The aircraft is supported by one or more masts as the lift gas is injected to achieve the required buoyancy for launch. The aircraft is then released and rises, for example, in an inclined orientation. As the aircraft climbs, the lift gas expands in the envelope, and the second gas is vented therefrom. During horizontal descent, air can be pumped into the envelope to maintain the envelope in a substantially filled configuration. The air and lift gas can be mixed to avoid sloshing and pooling.